



EXITING DETROIT FOR SCHOOL: INEQUITABLE CHOICE SETS AND SCHOOL QUALITY



WAYNE STATE

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RESEARCH NOTE

This research result used data structured and maintained by the MERI-Michigan Education Data Center (MEDC). MEDC data is modified for analysis purposes using rules governed by MEDC and are not identical to those data collected and maintained by the Michigan Department of Education (MDE) and/or Michigan's Center for Educational Performance and Information (CEPI). Results, information and opinions solely represent the analysis, information and opinions of the author(s) and are not endorsed by, or reflect the views or positions of, grantors, MDE and CEPI or any employee thereof.

WE WANT TO HEAR FROM YOU

This is the second report from the Detroit Education Research Partnership, in our series on students who live in Detroit but who do not attend school here. We produced this research to support educators, policymakers, and community organizations in their work to improve the educational experiences of Detroit youth. We want to hear from you about whether this research helped you in your work and what other questions you have. Please go to <http://go.wayne.edu/DetEdResearch> to learn more and give us your feedback.

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<http://go.wayne.edu/DetEdResearch>

EXITING DETROIT FOR SCHOOL: INEQUITABLE CHOICE SETS AND SCHOOL QUALITY

COLLABORATIVE POLICY RESEARCH

This research is the result of a collaboration between Wayne State University's College of Education and a constellation of community partners interested in improving Detroit schools, called the Detroit Education Research Partnership. We orient our work around the pressing policy needs of the Detroit education community, and we seek to inform the design of local educational reforms. We believe that education reform in other places has important lessons for our collective work in Detroit, but that any solution for Detroit will have to respond to the unique strengths and needs of our community.

Nearly a quarter of the students who live in Detroit, Mich., attend a public school outside the city. In choosing to exit Detroit, families take on the burden of enrolling in a nonresident school system or charter school, typically travel further to get to school, and take their state per pupil funding with them. Fewer students means fewer dollars have been available to invest in improving city schools by raising teacher salaries, remediating facilities, and purchasing instructional materials. The large number of students who exit also signals to prospective residents and businesses that Detroit may not be a desirable place to live and raise a family. It is critical for Detroit educational and political leaders to better understand what is pushing students to exit Detroit for school and what school qualities may be pulling students toward suburban schools.

MAJOR FINDINGS

- Students who exited had lower quality schools (test score performance, teacher and student stability, new teachers, discipline) in Detroit than students who stayed.
- Students who attended a non-Detroit school enrolled in schools that had, on average, higher discipline rates, more new teachers, lower teacher retention, and higher test scores than their choice sets in Detroit.
- The physical and cultural geography of students' neighborhood choice sets varied dramatically across the city. Students who lived in neighborhoods where most of their neighbors went to just a few schools were less likely to exit.
- Black K-8 students had, on average, lower quality choice sets than non-Black students in Detroit and they attended lower quality schools than non-Black students when they exited.

Download the full report and see all of our research at <http://go.wayne.edu/DetEdResearch>

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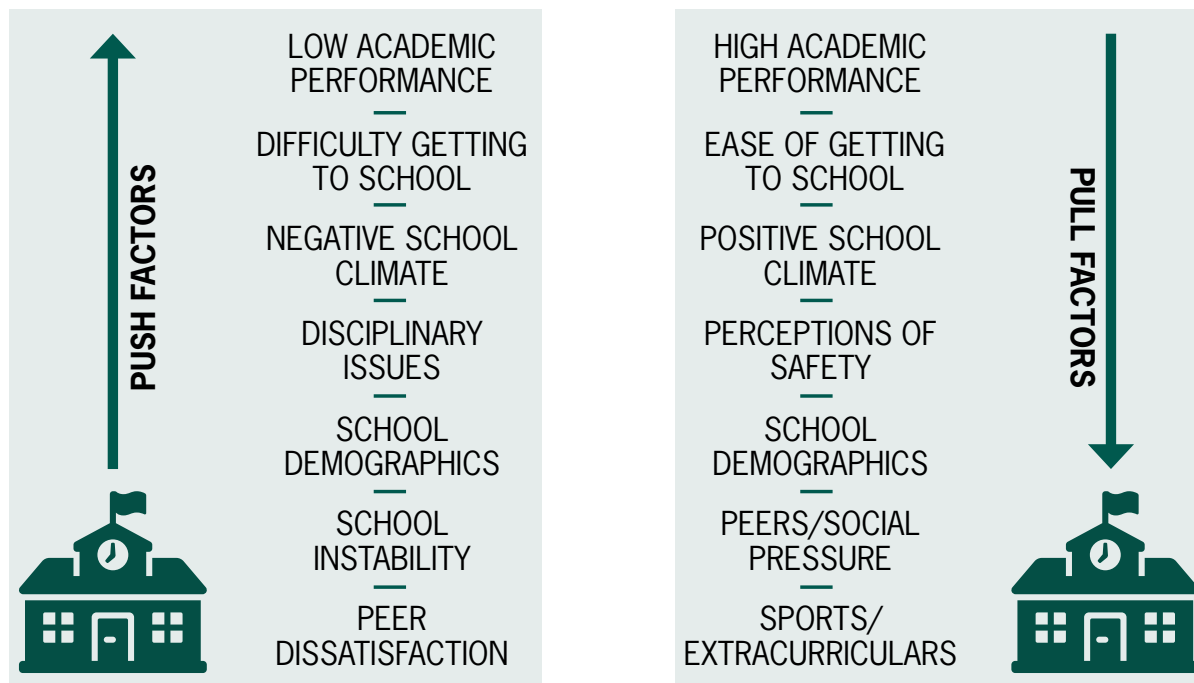


Nearly a quarter of the students who live in Detroit, Mich., attend a public school outside the city. In choosing to exit Detroit, families take on the burden of enrolling in a nonresident school system or charter school, typically travel further to get to school, and take their state per pupil funding with them. Most political officials (Levin, 2019) and some scholars (e.g., Arsen & Ni, 2012) have concluded that this exodus from city schools has had a detrimental effect on school infrastructure and economic revitalization. Fewer students means fewer dollars have been available to invest in improving city schools by raising teacher salaries, remediating facilities, and purchasing instructional materials. The large number of students who exit also signals to prospective residents and businesses that Detroit may not be a desirable place to live and raise a family. It is critical for Detroit educational and political leaders to better understand what is pushing students to exit Detroit for school and what school qualities may be pulling students toward suburban schools. This research study emerged out of a partnership between academic researchers and Detroit education and policy leaders, including the Detroit Public Schools Community District and the mayor-appointed Community Education Commission. Through an iterative process of gathering feedback from these partners, we developed a research agenda that would both advance the scholarship on school choice and answer policy-relevant questions about why students leave Detroit for school and what policymakers may be able to do about it. This paper builds on prior work in this area and will be used to generate additional research questions about school choice in Detroit in the future. Our study demonstrates how partnership with policymakers in districts and cities can strengthen approaches to solving critical educational problems, benefiting the public good.



Millions of families in the United States choose a public school option outside of their zoned catchment area. In Michigan, like many other states, school funding follows students to the school districts where they enroll, creating an incentive to compete for students. Therefore, it is critical for school leaders to better understand why parents choose, including why they choose not to enroll in local schools and why they choose the non-local schools that they do. As depicted in Figure 1, research suggests that families are “pushed” to consider school alternatives because of concerns about their zoned schools. Then, when they are searching for a non-zoned school, they are “pulled” by positive characteristics (Ellison & Aloe, 2018; Schneider & Buckley, 2002). School choices are influenced by families’ social networks (Holme, 2002), perceptions of school quality, student demographics (Schneider & Buckley, 2002), and geography (Bell, 2007). Yet, families’ choices are constrained by their perceptions of what schools are accessible to them (Altenhofen et al., 2016; Bifulco & Ladd, 2007; Bell, 2009a; Bell, 2009b; Diamond & Gomez, 2004; Harris & Larsen, 2015; Kleitz, Weiher, Tedin, & Matland, 2000; Schneider, Marschall, Teske, & Roch, 1998;). Using a unique approach to measuring student choice sets, this study examines how choice set characteristics are associated with exiting Detroit for school and the characteristics of the suburban schools Detroit students choose.

Figure 1: Factors that May Push Students Away from Neighborhood Schools or Pull Students to Schools of Choice





Detroit provides a unique context in which to better understand how parents may perceive their choice sets, where they choose to attend school given those choice sets, and how these factors may vary by student characteristics and geography. Our prior research documented many of the individual and neighborhood factors that may be pushing families to exit Detroit, including race, grade, concentration of schools, vacancies, crimes, and residential mobility. In this study, we focus on how school-level factors, including low academic performance, school safety and discipline, demographics, and school instability, may be pushing families to exit. We also take a closer look at where Detroit students attend school outside the city and how the characteristics of these schools vary by student demographics. In particular, we analyze whether Black or economically disadvantaged Detroiters enroll in suburban schools with different characteristics than non-Black or non-economically disadvantaged students, which may indicate that Detroiters have inequitable access to schools of choice.

“Detroit provides a unique context in which to better understand how parents may perceive their choice sets, where they choose to attend school given those choice sets, and how these factors may vary by student characteristics and geography.



1. WHY ARE FAMILIES PUSHED AWAY FROM DETROIT SCHOOLS?

- a. What factors inside schools are associated with student exit (i.e., academic performance, disciplinary rates, demographics, student mobility, and school stability)?
- b. Are the push factors different in high school than they are in K-8?
- c. How do they push factors vary by neighborhood geography?

2. WHY ARE FAMILIES PULLED TO SUBURBAN SCHOOLS?

- a. What are the characteristics of the schools Detroit students attend in the suburbs (i.e., performance, discipline, demographics)?
- b. How do they compare to Detroit school choice sets?
- c. Do the “pull” characteristics differ by grade level?
- d. Do the “pull” characteristics differ by race?



DATA

This study uses confidential student-level administrative data from the Michigan Student Data System, managed by the Michigan Department of Education and the Center for Educational Performance and Information. The dataset includes student-year records for every student who was enrolled in a public school (traditional or charter) in Metro Detroit during the school years 2010-11 to 2017-2018. Each record includes demographic information (race/ethnicity, gender, indicators of economic disadvantage, special education, and English language learner, and grade); residential information (residential school district, geocode for the Census block in which the student lives); and school information (school building and district where the student is enrolled). For this analysis, we used the data associated with the primary school in which the student was enrolled during the fall of the school year.

These data were used to identify our population of interest, Detroit resident students. To identify a student as a Detroit resident, we first flagged all students for whom the state administrative dataset had labeled as having a residential district code for Detroit Public Schools Community District, meaning that their zoned district was the main Detroit school district. Then, we mapped all of those students' geocodes onto a district shape file in QGIS. Any students for whom the state data identified as a Detroit resident but the mapping analysis identified as living outside of the Detroit district, we dropped from our analysis. Our sample included 857,271 unique student-year records for students who lived in the city of Detroit during the fall of a school year. We also created a new variable for each record indicating whether a student attended a school outside Detroit in the fall of the school year. About 21% of Detroit students were identified as having enrolled in a non-Detroit public school across all years.

As part of our confidential data agreement, we also received data on teachers in Metro Detroit schools over the same time period. These data included the year teachers received their teaching license, how long they had worked in the district, and where they were employed over time, allowing us to calculate school-level rates of new teachers, teachers returning each year, and the racial composition of the teaching staff. From the student-level data, we calculated additional school-level variables by year, including aggregate



student demographics, z-scores on the state English Language Arts and math assessments, and the percentage of students who left the school when they were not in a grade-transition year. We also used the Civil Rights Data Collection public use files to calculate the number of student discipline infractions per 100 students each year. All school-level aggregates were standardized at the school level.

We merged data from the public use files of the American Community Survey onto each record's fall residential Census block group (average household income, home value, and racial demographics of residents). We used Michigan's public Education Entity Master to identify school building physical addresses and block groups, and we merged ACS population characteristics onto school block groups, as well. We used a similar procedure to merge city-provided block group home vacancy data onto residential and school block groups. Descriptive statistics of all variables in our model are shown in Table 1 in the appendix.

CONSTRUCTION OF NEIGHBORHOOD CHOICE SETS

Like many urban cities with rich cultural histories, Detroit has non-uniform neighborhoods that organize social and cultural life. Many of these neighborhoods are used as shorthand to describe geographic areas of the city. The City of Detroit has formally adopted a neighborhood map with 194 named neighborhoods across the city's 143 square miles. We downloaded a map file with these neighborhood boundaries for our analysis. Instead of using a standard distance from each child's home or neighborhood to determine a choice set, we conceived of a choice set as those schools where students' neighborhood peers were enrolled, and we created weighted averages of standardized school characteristics for each grade band (k-2, 3-5, 6-8, and 9-12). This method accounts for the possibility that students who live in different areas of the city may have different means of accessing schools further from home, due to infrastructure (i.e., school site location, city bus routes, neighborhood safety, and availability of childcare) or concentrations of dimensions of economic disadvantage that are not observable in our data (i.e., access to a personal automobile, housing insecurity). Importantly, we included all schools that neighborhood peers attended and all schools located within the neighborhood, but we weighted the neighborhood choice set characteristics by the number



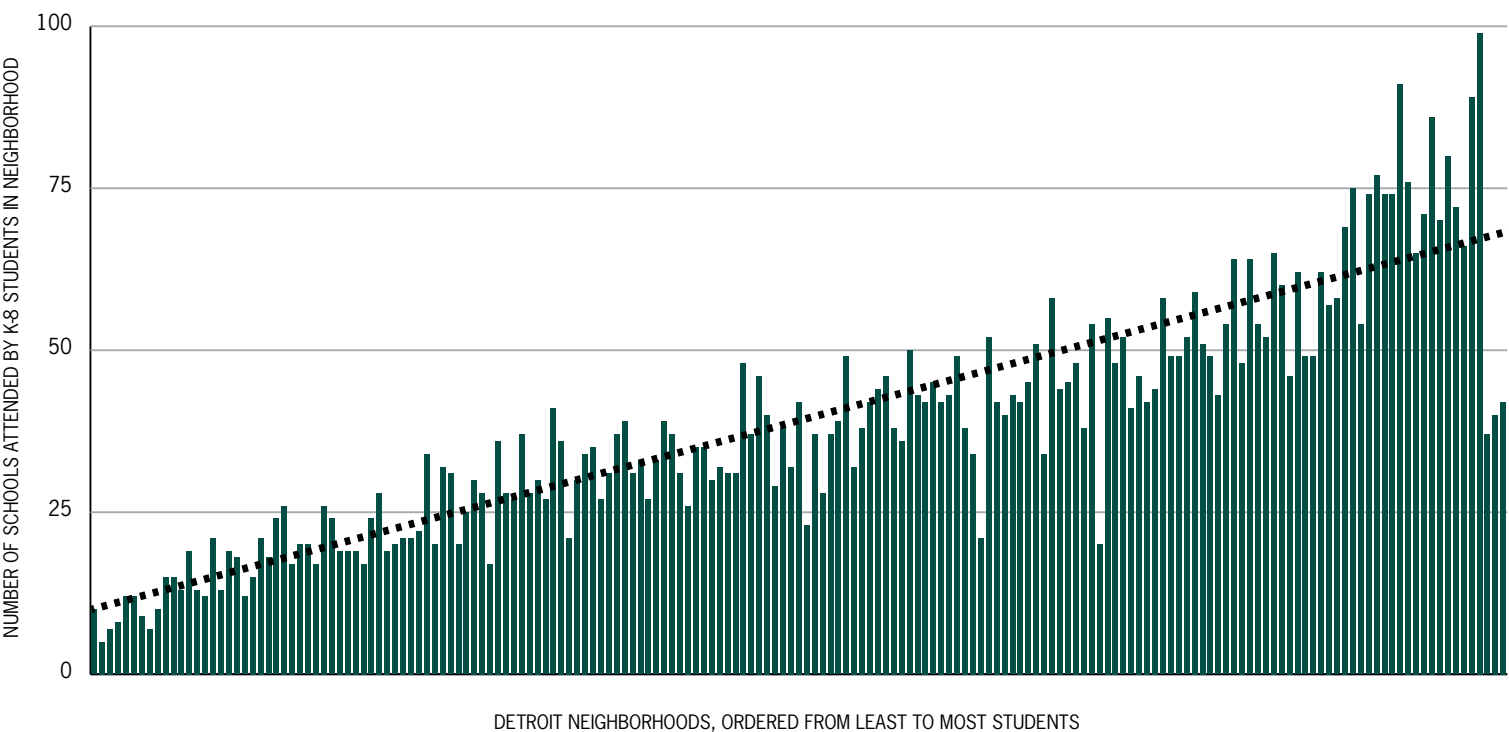
of neighborhood students who attended each school. As shown in Figure 2, neighborhoods varied dramatically in their size and in the dispersion of students throughout Detroit schools.

ANALYTIC APPROACH

Push Factors

First, we ran t-tests to compare the mean individual characteristics and Detroit neighborhood choice set characteristics of students who stayed in Detroit for school (Stayers) and those who exited Detroit for school (Exiters). We then ran a series of mixed effects models predicting exit as a function of individual characteristics nested within neighborhood choice set characteristics. We separated K-8 students from high school students in these analyses, hypothesizing that push factors may be different as students move into high school, given the increased emphasis on college and career readiness, competitive sports, and concerns about student safety. In high school, teacher return rate and student stability were highly correlated (above 0.7), so we opted to exclude student stability in our high school models. As shown

Figure 2: Variation in K-8 Detroit Choice Set Size by Neighborhood, 2017-18





in Tables 3 and 4 in the appendix, Model 1 is the unconditional model, Model 2 includes student and choice set covariates, and Model 3 adds individual student performance z-scores, which are only available for students in grades 3-8 and 11. In Model 4, we include a set of interactions of student individual race and the racial composition of the schools in their choice sets, hypothesizing that, to the extent that school racial demographics are associated with exit, this relationship might vary by students' own race.

We also examined the geographic features of Detroit students' choice sets, both in order to determine distinct patterns of exit that may vary by geography and to illustrate variation in choice sets and school attendance in Detroit. To do this, we used QGIS mapping software to create visual representations of neighborhood choice sets within Detroit and patterns of enrollment outside of Detroit by neighborhood. The examples of Brightmoor, Springwells, Warrendale, and Franklin are meant to represent different landscapes of Detroit choices, student demographics, and exit patterns.

Pull Factors

We then ran t-tests to measure the differences between Detroit choice set characteristics and characteristics of the non-Detroit schools Exiters chose. We disaggregated this analysis by student race (Black and non-Black) and socio-economic status (economically disadvantaged or not) to determine whether Detroit students may be choosing schools that are more or less like the schools they have access to in Detroit, depending on their race or income status. We also compared the suburban school characteristics of the students who live in the top and bottom quintiles of distance away from a non-Detroit border, hypothesizing that families who are traveling farthest to get to a non-Detroit school may be choosing differently than students who live very near a non-Detroit border. We suspected that, largely because the wealthiest areas of the city are located downtown, far away from non-Detroit borders, that families who live there may be choosing schools with wealthier student populations and possibly in whiter and wealthier communities. Finally, we compared the non-Detroit schools Exiters enrolled in by student characteristics to determine if different subgroups chose different types of schools when they exited Detroit.

WHAT PUSHES DETROIT STUDENTS OUT?

Students' choice sets in Detroit were associated with the odds that they would exit Detroit for school. The more concentrated neighborhood children were in fewer schools, the less likely they were to exit. As shown in Figure 3, rates of exit from Detroit varied dramatically by area of the city and neighborhood, with the highest rates concentrated at the borders. The lowest rates of exit were in Southwest Detroit, where large concentrations of Latinx families live. These patterns are reflected in the t-tests comparing Exiters to Stayers in Table 2 in the appendix. A lower proportion of Exiters were Latinx than Stayers, while Exiters had higher proportions of White and Asian students than Stayers, aligning with previous findings around race/ethnicity and geography. Exiters on average lived closer to a non-Detroit border than Stayers, and they also lived in neighborhoods with fewer public school students. However, Exiters lived in neighborhoods where the students were more dispersed, with fewer students per school than the neighborhoods of Stayers, suggesting that these areas are perceived to have fewer high quality school choices nearby. Exiters lived in neighborhoods where a greater proportion of students were exiting than stayers.

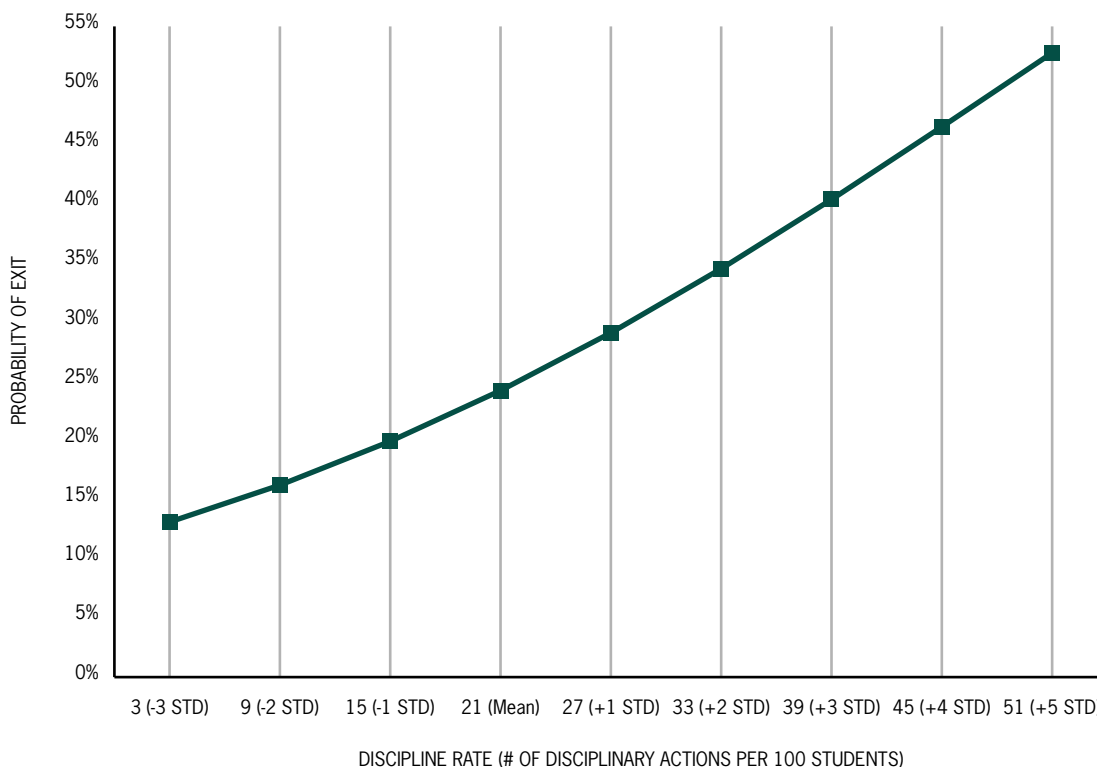
Figure 3: Percentage of Students that Exited Detroit for School by Neighborhood, 2017-18





In our mixed effects models, with students nested within neighborhood-grade-year choice sets, K-8 students who were not Black had higher odds of exiting than Black students did across our models, shown in Table 3 in the appendix. Although many of the choice set covariates had lower coefficients than student-level characteristics, there were some interesting patterns. For instance, students whose choice set schools had, on average, higher student stability, teacher return rates, state test scores, percentage of students attending a Detroit charter school, and ratio of students to schools attended had lower odds of exiting. Students whose choice sets had, on average, higher rates of discipline, had higher odds of exiting. For every additional 7 disciplinary incidents per 100 students among Detroit schools in a choice set (one standard deviation above the mean), the odds of a student exit increased by 1.2 times, as shown in Figure 4. Controlling for other covariates, economically disadvantaged students had greater odds of exit than students who were not designated as economically disadvantaged, and students who lived farther away from the border had decreased odds of exit. In Model 4, we estimated that White and Latinx students were more likely to exit as the

Figure 4: Probability of Exit at Different Levels of Disciplinary Rates in Neighborhood Choice Set Schools, 2017-18





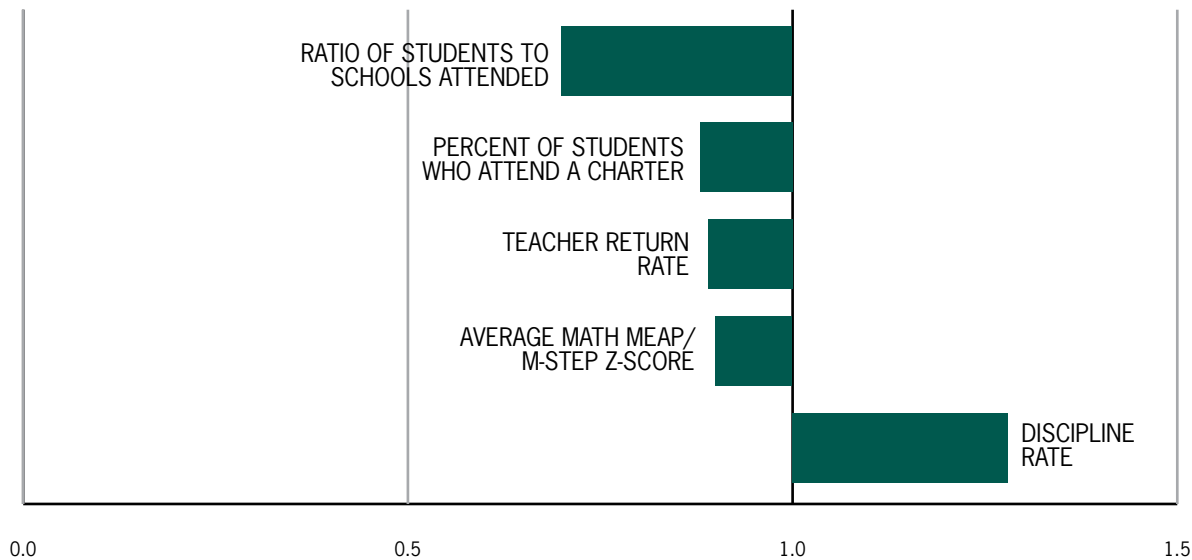
percentage of Black or Latinx students in their choice set schools increased. See Figure 5 for a graphical portrayal of the relationship between choice sets and exit.

Patterns looked similar for high school students with a few exceptions, as shown in Table 4 in the appendix. In K-8, female students were slightly more likely to exit than male students in two of our models, but, in high school, female students were more robustly associated with lower odds of exit than male students. This suggests there may be unique push and pull factors by gender in high school. Average math test scores in choice set schools were not significantly associated with exit in high school, as they were in K-8. Other choice set characteristics had similar associations to the odds of exit in high school as they did in K-8.

WHAT PULLS DETROIT STUDENTS AWAY?

Comparing the Detroit choice sets of Exiters to the suburban schools they attended, we found some striking differences. As shown in Table 5 in the appendix, 81% of K-8 Exiters attended a charter school outside of Detroit, whereas just 49% of students in Exiters’ choice sets, on average, attended a charter school in Detroit. However, high school Exiters had lower rates of charter attendance in the suburbs than their choice sets in Detroit. The sub-

Figure 5: Choice Set Push Factors, Odds Ratios for K-8



Note. Only odds ratios for neighborhood choice set characteristics are shown, significant at $p < 0.01$.



urban schools Exiters attended had, on average, 24% new teachers in their buildings, versus just 16% new teachers in Exiters' Detroit choice sets. The teacher return rate was also lower in suburban schools than in city choice sets for Exiters. Test scores were considerably higher in suburban schools that Exiters attended than in their Detroit choice sets, which may be partially driven by the lower rates of economically disadvantaged students and special education students in Exiters' suburban schools than in their Detroit choice sets. Detroit choice sets in both K-8 and high school had much higher rates of Black teachers than did the suburban schools Exiters attended.

We see the biggest differences in the community characteristics surrounding the schools. The suburban school communities where Detroit students attended school had much higher rates of White residents, much lower rates of Black residents, and higher incomes and home values. For instance, just 9% of the community residents in Exiters' Detroit choice sets were White, but an average of 51% of community residents were White in the suburban schools Detroit students attended. These demographic differences are mirrored in school demographic characteristics, although not as starkly.

Table 1 reports differences in Exiters' Detroit choice sets and their suburban schools by race and Table 6 in the appendix reports differences by economic disadvantage. While Black students attended suburban schools with higher discipline rates than their Detroit choice sets, non-Black students attended suburban schools with lower discipline rates, even though their Detroit choice sets already had much lower rates of discipline than the choice sets of Black students in the city. Compared to their Detroit choice sets, Black K-8 students attended schools with more new teachers, more teacher turnover, and fewer Black teachers than the average school in their choice set in Detroit. They attended schools with higher test score performance than their Detroit choice sets. The racial demographics of the schools attended by Black students in the suburbs were quite different than non-Black students. The average school in Black Exiters' Detroit choice sets was 97% Black or Latinx, compared to their suburban schools which had 88% Black or Latinx students. Non-Black students, however, had much lower rates of Black or Latinx students in both their choice sets and in the suburban schools they attended, where just 40% of students were Black or Latinx. Non-Black Exiters also attended suburban schools with much higher rates of English Language Learners than in their choice sets, which, on average, had 34% and 22% English Language Learners in their suburban schools in K-8 and high school, respectively.



Table 1: Exiters: T-Tests Comparing Detroit Choice Set Schools to Exit Schools Attended, by Race (2010-11 to 2017-18)

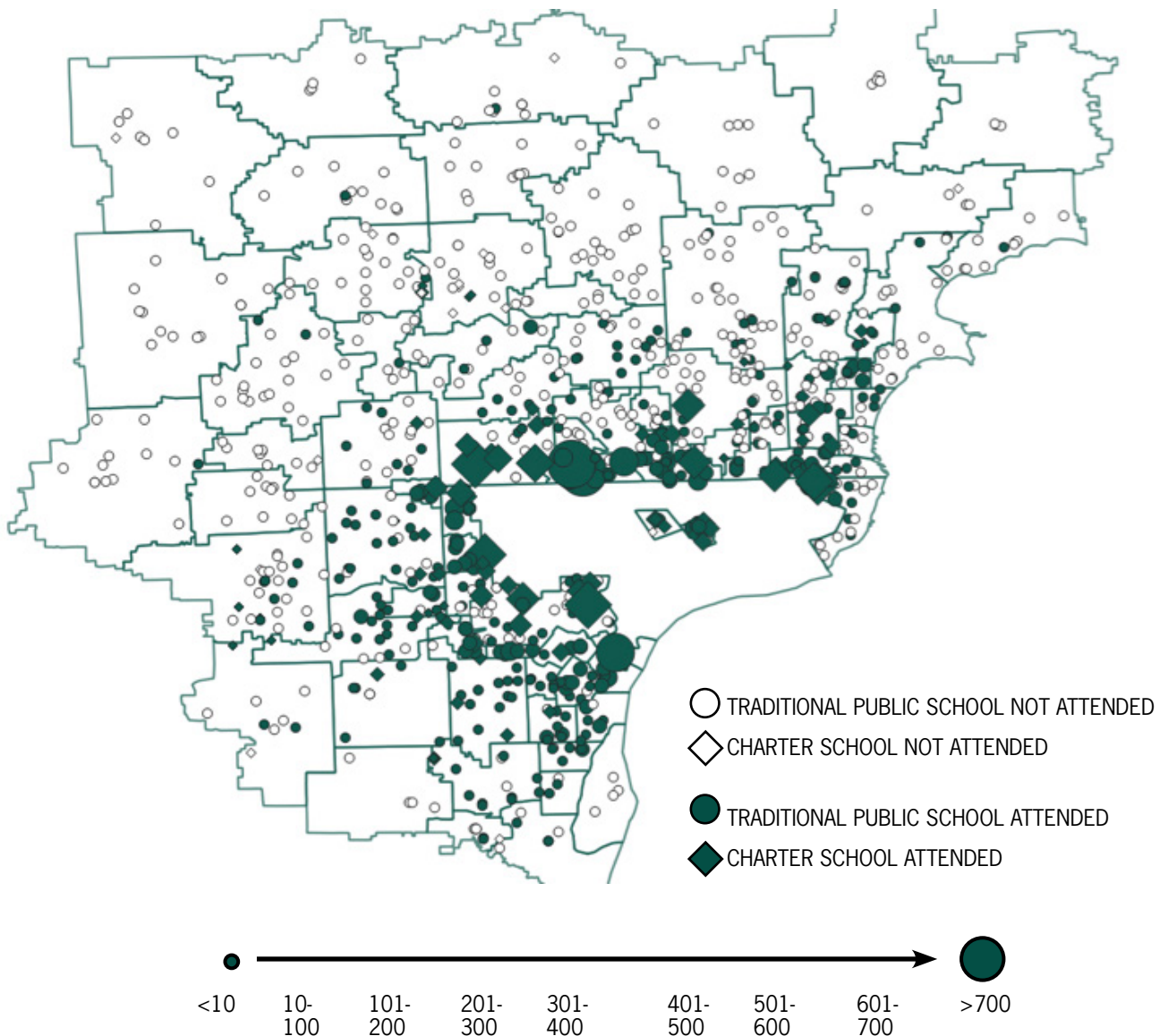
Variable	Black Students		Non-Black Students		Black Students		Non-Black Students	
	Detroit Neighbor Choice Set (K-8)	Suburban School Exited To (K-8)	Detroit Neighbor Choice Set (K-8)	Suburban School Exited To (K-8)	Detroit Neighbor Choice Set (9-12)	Suburban School Exited To (9-12)	Detroit Neighbor Choice Set (9-12)	Suburban School Exited To (9-12)
N	91,731		19,941		59,320		8,344	
SCHOOL CHARACTERISTICS								
Charter	0.4940	0.8226***	0.4643	0.7314***	0.3957	0.3326***	0.4164	0.4227***
Discipline Rate	20.5429	23.2430***	17.7399	15.6010***	26.2005	26.8643***	24.9358	25.3810***
School Stability Rate	0.8042	0.8097***	0.8296	0.8729***	0.7528	0.7325***	0.7588	0.8260***
% New Teachers	0.1576	0.2421***	0.1533	0.2651***	0.1687	0.1843***	0.1696	0.1944***
Teacher Return Rate	0.6242	0.5731***	0.6280	0.5904***	0.5781	0.5938***	0.5815	0.6308***
% Black Teachers	0.4976	0.2519***	0.4425	0.0790***	0.4798	0.2195***	0.4480	0.0819***
Math Z-Score	-0.8149	-0.6533***	-0.7690	-0.3397***	-1.0113	-0.8930***	-0.9791	-0.5526***
ELA Z-Score	-0.7254	-0.5895***	-0.7261	-0.4021***	-0.8735	-0.7538***	-0.8641	-0.5465***
% Black or Latinx	0.9694	0.8811***	0.9166	0.3994***	0.9654	0.8463***	0.9317	0.4458***
% Black	0.9373	0.8546***	0.7666	0.3065***	0.9283	0.8216***	0.8378	0.3781***
% Latinx	0.0321	0.0265***	0.1500	0.0929***	0.0371	0.0247***	0.0939	0.0677***
% Economically Disadvantaged	0.8818	0.8658***	0.8929	0.8817***	0.8326	0.7855***	0.8426	0.7901***
% ELL	0.0381	0.0451***	0.1717	0.3406***	0.0343	0.0316***	0.0845	0.2163***
% Special Education	0.1528	0.1104***	0.1575	0.1072***	0.1959	0.0919***	0.2036	0.0967***
NEIGHBORHOOD/ COMMUNITY CHARACTERISTICS								
% White in School Community	0.0836	0.4700***	0.1251	0.7110***	0.1121	0.5062***	0.1404	0.6983***
% Black in School Community	0.8504	0.4580***	0.6874	0.1381***	0.8031	0.4063***	0.7121	0.1538***
% Latinx in School Community	0.0357	0.0253***	0.1499	0.0358***	0.0521	0.0211***	0.1127	0.0393***
Household Income in School Community	28,370.23	46,612.96***	27,432.98	37,979.16***	26,100.88	45,486.23***	25,840.40	42,264.13***
Household Home Value in School Community	60,945.79	88,170.88***	55,614.45	103,891.00***	67,095.26	88,642.06***	63,916.30	88,8221.57***

* p < 0.05, ** p < 0.01, *** p < 0.001

GEOGRAPHIC PATTERNS IN CHOICE SETS AND EXIT

We mapped four Detroit neighborhood choice sets to demonstrate how the patterns of enrollment in Detroit varied dramatically by geography, and we also mapped the patterns of exit from those neighborhoods, to show how different Exiters chose different types of schools. Figure 6 shows the concentration of Detroit residents enrolled in schools outside of Detroit, with different indicators for traditional public schools and charter schools.

Figure 6: Schools Outside Detroit Attended by Detroit Students, 2017-18





Brightmoor

In Figure 7, we display the choice set for Detroit students who lived in Brightmoor, on the city's far west side. Brightmoor has a strong cultural history and was a thriving working class community of single-family homes during Detroit's boom years. Like other areas in the region, it lost population over the last 30 years and suffered from divestment and blight. Nearly all of Brightmoor's residents are Black and economically disadvantaged. Over time, many of the neighborhood's schools were closed, leaving only one traditional public school within its 4-square-mile boundary. The largest proportion of Brightmoor students attended that school, with a charter school north of the neighborhood the second highest attended. Other Brightmoor students were scattered far afield, with just a few students from the area attending schools in dozens of other neighborhoods. As shown in Figure 8, about 30% of Brightmoor's students attended school outside of Detroit, mostly in traditional public and charter schools within a few miles of Detroit's northwest border.

Figure 7: Brightmoor K-8 Detroit Choice Set, 2017-18

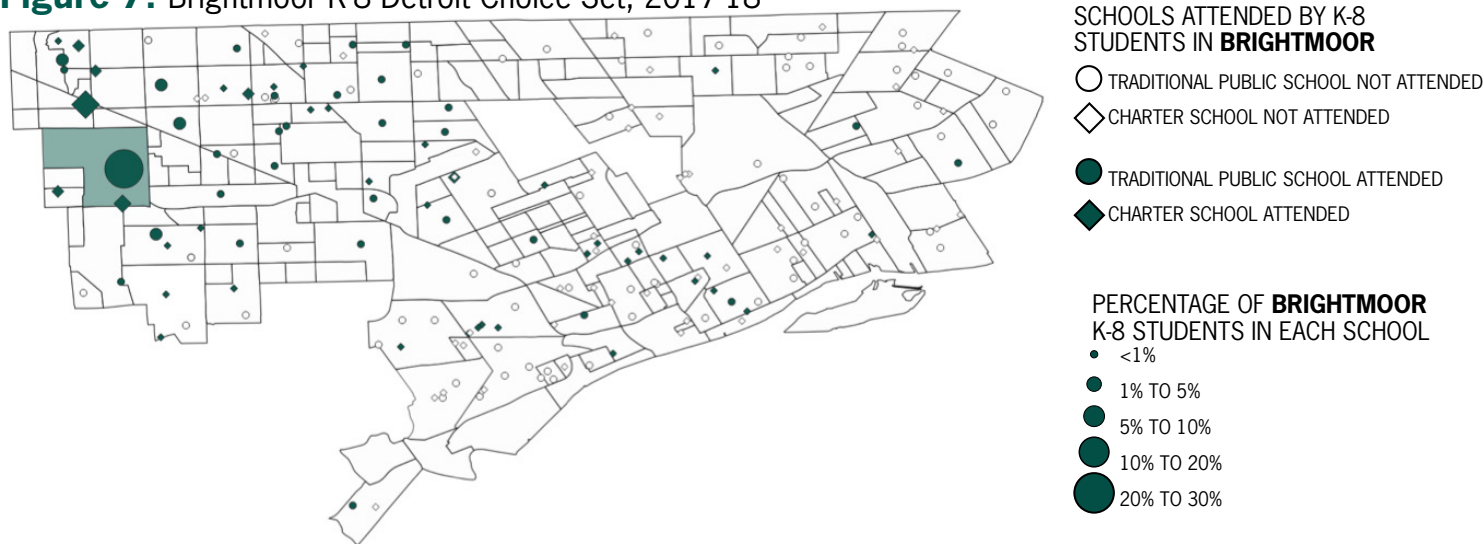
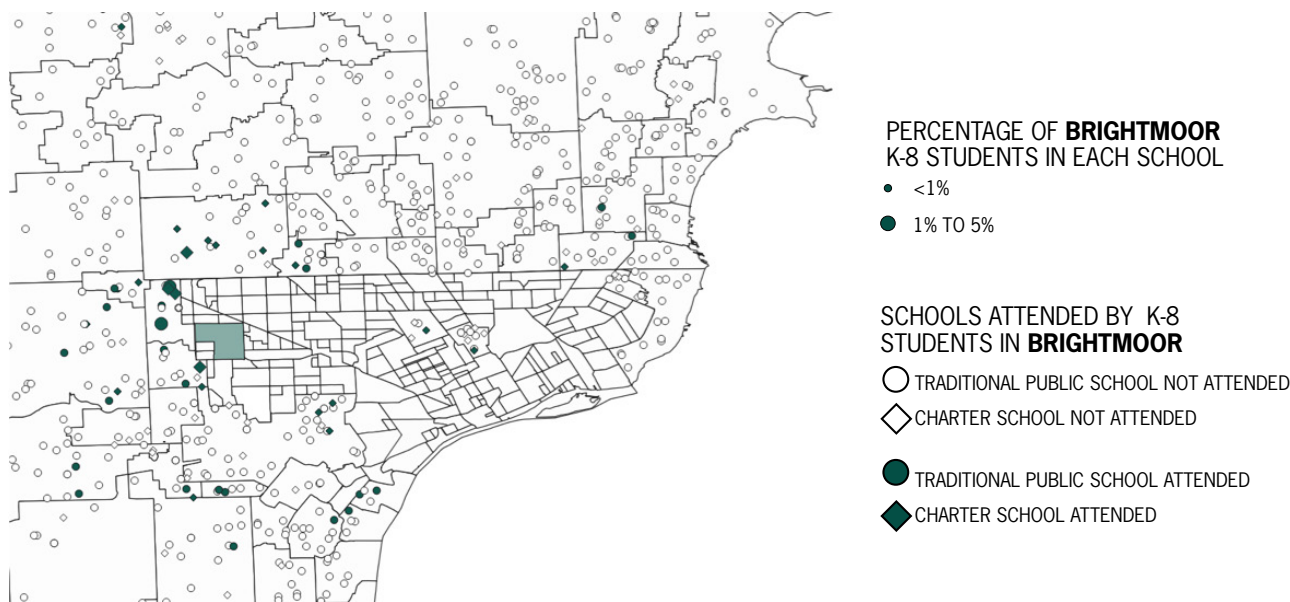


Figure 8: Non-Detroit Schools Attended by Brightmoor Residents, 2017-18



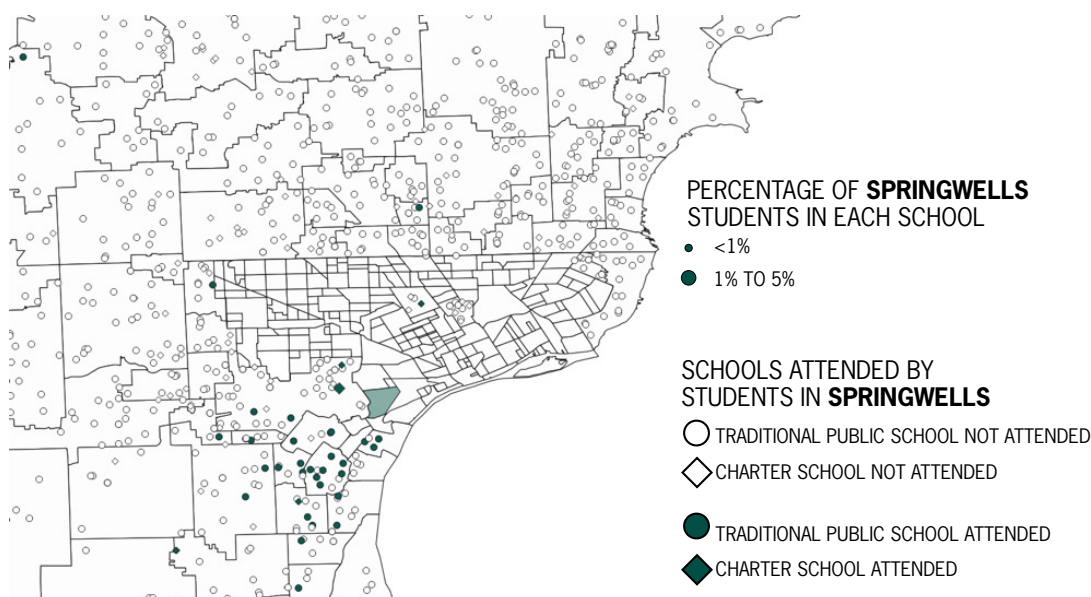
Springwells

The patterns of choice sets and exit enrollment are dramatically different in Springwells, a neighborhood in southwest Detroit. Southwest Detroit is home to the vast majority of Detroit's Latinx residents and has high rates of English Language Learners. As shown in Figure 9, students in Springwells have access to schools that are much more concentrated near where they live. The majority attended school within the Springwells neighborhood, which has four schools, or an adjacent neighborhood in Southwest. Very few Springwells students attended school outside of Southwest, and, as shown in Figure 10, just 5% of Springwell's students exited Detroit for school.

Figure 9: Springwells K-8 Detroit Choice Set, 2017-18



Figure 10: Non-Detroit Schools Attended by Springwells Residents, 2017-18





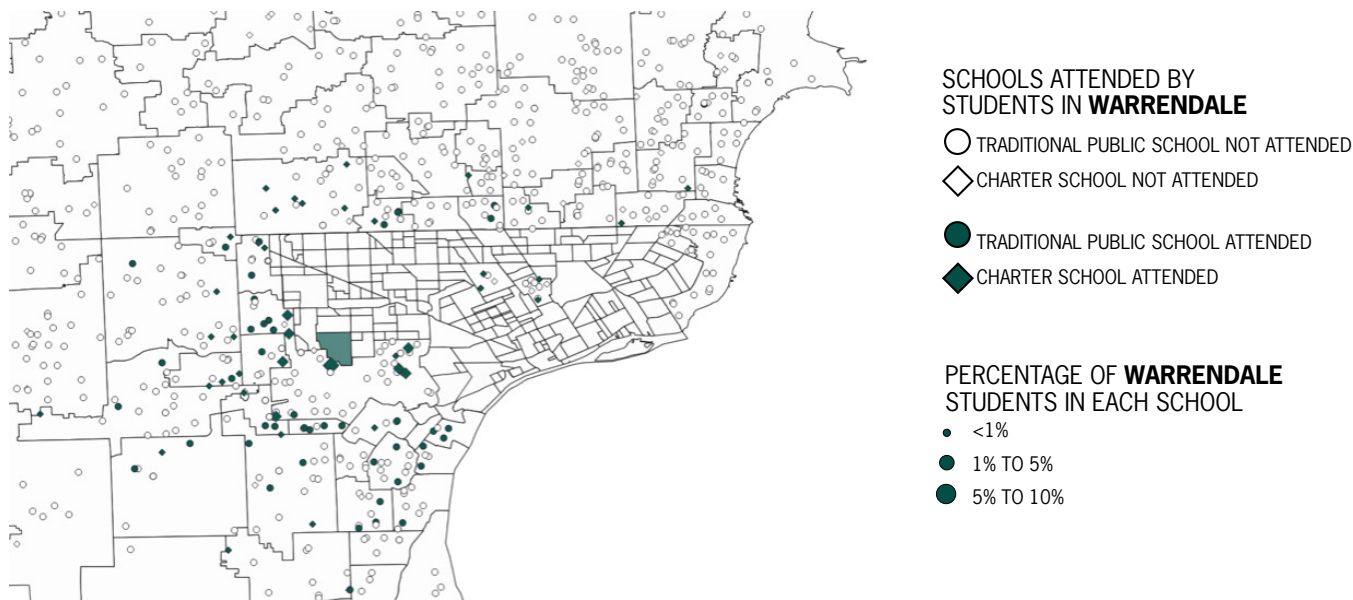
Warrendale

Warrendale, a neighborhood on the west side of Detroit that borders Dearborn, has a large White population, many of whom are English Language Learners. We suspect that most of these students are Middle Eastern or North African (MENA), but current school administrative reporting rules classify these students as White. As shown in Figure 11, more than a quarter of Warrendale students who attended school in Detroit stayed in the neighborhood, but the rest were distributed widely throughout the city. Nearly three-quarters of Warrendale students attended non-Detroit schools. As shown in Figure 12, Warrendale students were widely distributed throughout schools in the suburbs of Detroit, including many in charter schools in the districts surrounding Detroit to the south, west, and even some to the north.

Figure 11: Warrendale K-8 Detroit Choice Set, 2017-18



Figure 12: Non-Detroit Schools Attended by Warrendale Residents, 2017-18





Franklin

Finally, we mapped the choice set for students who lived in the Franklin neighborhood, with fewer than 400 students. As shown in Figure 13, there are no schools in Franklin itself, but most students attended school at three traditional public schools and one charter school near the neighborhood. Many of Franklin’s students exited Detroit for school, mostly to charter and traditional public schools very near their neighborhood, just over the border in places like Harper Woods, as shown in Figure 14. Some Franklin students did attend school much farther away, in suburbs far north and south of Detroit.

Figure 13: Franklin K-8 Detroit Choice Set, 2017-18

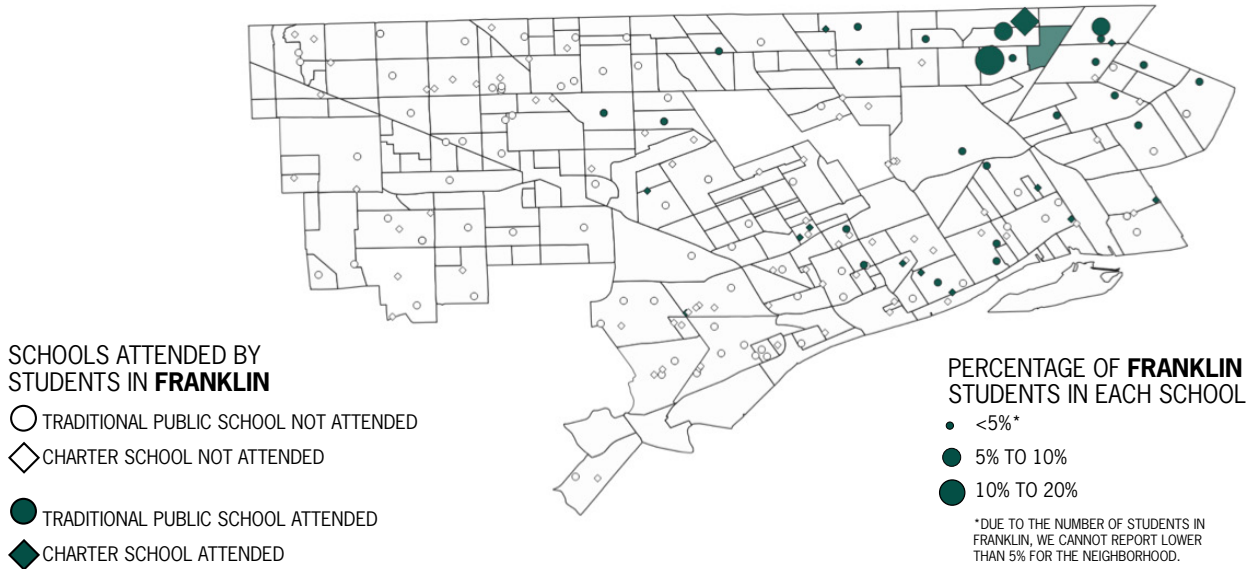
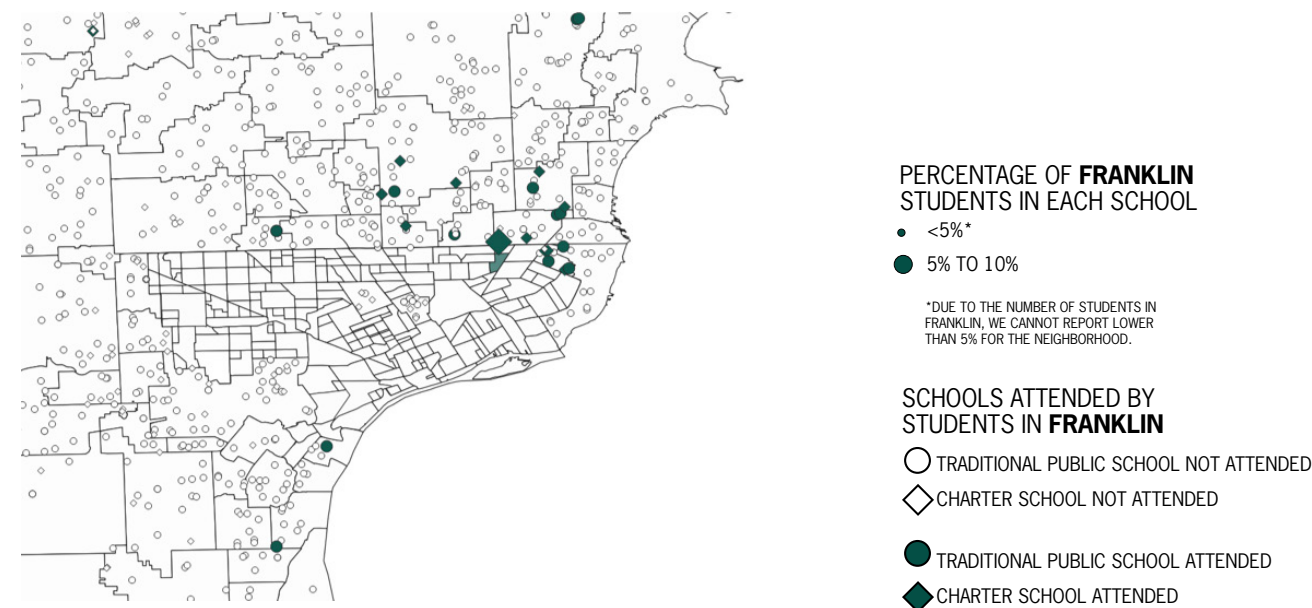


Figure 14: Non-Detroit Schools Attended by Franklin Residents, 2017-18





EXITING AND ENTERING DETROIT FOR HIGH SCHOOL

One pattern we identified in our analysis was that high school push and pull factors were somewhat different, particularly in regards to the types of schools (charter vs. traditional public) Exiters enrolled in and patterns of switching between Detroit and non-Detroit schools. As shown in Figure 15, rates of switching from and to Detroit schools were fairly stable throughout the grades, except in 9th grade, when about 20% of students switched in 2017-18. To support school leaders and policymakers in strategizing about how to attract students during this key transition year, we have listed the top 5 Detroit and non-Detroit schools enrolled in when 9th graders switched between Detroit and non-Detroit schools in 2017-18 (see Table 2).

Figure 15: Enrollment Pattern of Detroit Students by Grade, 2017-18

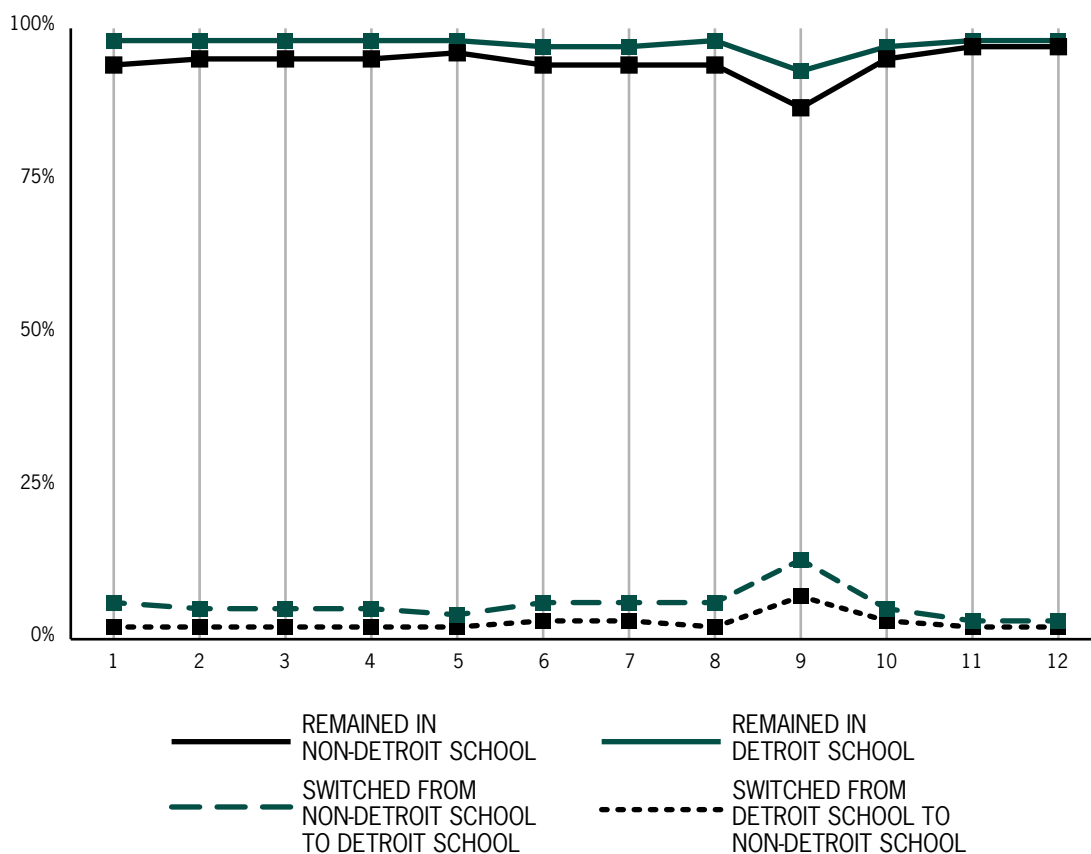




Table 2: Top Schools Enrolled in When 9th Graders Switched Between Detroit and Non-Detroit Schools (2017-18)

	Number of Students Who Switched to School from a Non-Detroit School for 9th Grade	Percentage of 9th Graders Who Switched from a Non-Detroit School to a Detroit School Enrolled
DETROIT SCHOOLS		
Cass Technical High School	73	17%
Renaissance High School	46	11%
Jalen Rose Leadership Academy	25	6%
Old Redford Academy High School	24	6%
Cornerstone Health and Technology High School	21	5%
	Number of Students Who Switched from a Detroit School to a Non-Detroit School for 9th Grade	Percentage of 9th Graders Who Switched from a Detroit School to a Non-Detroit School Enrolled
NON-DETROIT SCHOOLS		
River Rouge High School	65	12%
Oak Park High School	61	12%
Henry Ford Academy	39	7%
Advanced Technology Academy	36	7%
Eastpointe High School	29	6%



School choice policies are now ubiquitous across the United States, with a majority of states allowing some type of choice outside of students' zoned schools. Research over the last two decades has documented that families' choices are constrained (Bell, 2009a; 2009b) and that student demographics play an outsized role in who chooses and in what schools are chosen. Families are positioned within a "landscape" of choices, they evaluate what they perceive to be their options, consider their personal resources, and make judgments that may or may not lead them to make a choice (Bowe, Gewirtz, & Ball; 1994). And families' choices are positioned by their histories and beliefs about the meaning of their choices (Cooper, 2005).

In this study, Detroit families were more likely to exit Detroit for school if the Detroit schools accessible to them were lower quality in terms of student and teacher stability, discipline rates, proportions of new teachers, and student academic performance. However, Detroit students had different school choices accessible to them in the city, and the schools they chose outside Detroit varied dramatically based on students' race and income status. A clear example is around student discipline – an important indicator of quality because it is associated with student safety, attendance, and engagement. Students with higher discipline rates in their Detroit choice sets had greater odds of exiting Detroit for school, controlling for student race and other demographics. Black Exiters had higher discipline rates in their Detroit choice sets, with an average of 21 discipline infractions per 100 students, compared to non-Black Exiters with an average of 18 discipline infractions in their Detroit choice sets. When Black Exiters chose suburban schools, they enrolled in schools with higher average discipline rates than their Detroit choice sets (23 infractions), but non-Black Exiters enrolled in suburban schools with lower discipline rates than their choice sets (16 infractions).

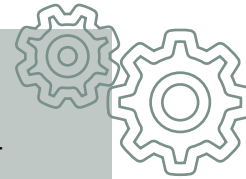
What are the implications of these findings? Many Detroit students leave the city for school every day, but they do so for different reasons and at different rates depending on both who they are as individuals and the choices they have available to them in the city. As we work with policymakers and educators in Detroit who are interested in attracting more Detroit students back to city schools, there are several important takeaways that may inform policy and practice, and additional questions that need to be answered to fully understand school choice decisions in Detroit.

KEY TAKEAWAYS



- Students who exited had lower quality schools (test score performance, teacher and student stability, new teachers, discipline) in Detroit than students who stayed.
- Students who attended a non-Detroit school enrolled in schools that had, on average, higher discipline rates, more new teachers, lower teacher retention, and higher test scores than their Detroit choice sets.
- The physical and cultural geography of students' neighborhood choice sets varied dramatically across the city. Students who lived in neighborhoods where most of their neighbors went to just a few schools were less likely to exit.
- Black K-8 students had, on average, lower quality choice sets than non-Black students in Detroit and they attended lower quality schools than non-Black students when they exited.

POLICY IMPLICATIONS



- Increasing the quality of schools in Detroit – including reducing teacher turnover and discipline and increasing student achievement – may entice more families to stay in Detroit for school.
- Black students have access to lower quality schools in the city and in the suburbs. More should be done to ensure racial equity among both city and regional school choices.
- Ninth grade was a key inflection point for many students and may be an important grade to focus on in student recruitment efforts.



FUTURE RESEARCH

- More research needs to be done to fully understand what pulls families to particular schools outside Detroit. In future research, we will study the programs and services that may be attracting Detroit families, including transportation, extra-curriculars, or specialized academics.
- Our future research will also look more closely at the differences in exit in high school, especially in the transition to 9th grade.
- Tens of thousands of Detroit students leave the city for school every day. Future studies will examine the long-term effects of exit from Detroit on students, schools, and neighborhoods, and how those effects vary by student characteristics.



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TECHNICAL APPENDIX

Table 1: Descriptive Statistics of Resident Detroit Student “Push Factors,” 2010-11 through 2017-18

Variable	N	Mean	S.D.	Min.	Max.
STUDENT LEVEL					
Exits Detroit	857,271	0.2092	-	0	1
Black	857,271	0.8452	-	0	1
Latinx	857,271	0.0962	-	0	1
White	857,271	0.0406	-	0	1
Asian	857,271	0.0111	-	0	1
Economically Disadvantaged	857,271	0.8775	-	0	1
ELL	857,271	0.1017	-	0	1
Special Education	857,271	0.1377	-	0	1
ELA Z-Score	370,926	-0.6513	0.8574	-2.0000	2.0000
Math Z-Score	369,852	-0.7209	0.8189	-2.0000	2.0000
Female	857,271	0.4971	0.5000	0	1
K-2	857,271	0.2426	-	0	1
3-5	857,271	0.2338	-	0	1
6-8	857,271	0.2262	-	0	1
9-12	857,271	0.2974	-	0	1
Distance to Nearest School in Miles by Grade Band	857,271	0.6591	0.4508	0.0004	4.0857
Attends Nearest School by Grade Band	857,271	0.1879	-	0	1
Residential Block Group Household Income	832,901	29,617.53	13,180.39	2,499.00	148,977.00
Residential Block Group Household Home Value	798,961	55,807.84	32,887.47	9,999.00	1,000,001.00
Residential Block Group Vacancies	857,071	0.2674	0.1396	0.0000	1.0000
Distance to a Non-Detroit District	857,271	2.9803	1.3005	0.4624	6.6150



Table 1 continued: Descriptive Statistics of Resident Detroit Student “Push Factors,” 2010-11 through 2017-18

Variable	N	Mean	S.D.	Min.	Max.
NEIGHBORHOOD CHOICE SET BY GRADE BAND					
N Students	6,001	112.9398	137.7598	1	1,133
N Schools Attended	6,001	21.8325	12.9428	1	73
Ratio of Students to Schools Attended	6,001	4.3143	4.2111	1	47.2083
N DPSCD Schools Attended	6,001	11.4894	7.3236	0	41
Number of Charter Schools Attended	6,001	10.3431	6.3465	0	37
% Students Who Exit	6,021	0.2071	0.1307	0.0000	1.0000
Distance Students Travel in Miles	6,001	3.1315	0.8848	0.6365	7.3458
Charter	6,001	0.4804	0.1465	0.0000	1.0000
Discipline Rate	5,983	20.8767	6.8527	0.0000	70.0885
School Stability Rate	5,250	0.8012	0.0451	0.0476	0.9673
% New Teachers	6,001	0.1646	0.0456	0.0000	0.6970
Teacher Return Rate	5,250	0.6214	0.0712	0.0000	0.9463
% Black Teachers	6,001	0.4825	0.0788	0.0000	0.8750
Math Z-Score	6,000	-0.8170	0.1825	-1.7610	0.3460
ELA Z-Score	6,000	-0.7165	0.1729	-1.3610	0.3170
% Black or Latinx in School	6,001	0.9649	0.0315	0.4933	1.0000
% Black in School	6,001	0.9103	0.1402	0.0256	1.0000
% Latinx in School	6,001	0.0546	0.1235	0.0000	0.9178
% Economically Disadvantaged in School	6,001	0.8621	0.0457	0.4731	1.0000
% Special Education	6,001	0.1543	0.0365	0.0147	0.3892
% ELL	6,001	0.0555	0.1070	0.0000	0.7780
% White in School Community	6,001	0.1022	0.0467	0.0000	0.5265
% Black in School Community	6,001	0.8068	0.1383	0.0296	1.0000
% Latinx in School Community	6,001	0.0578	0.1112	0.0000	0.9025
Household Income in School Community	5,998	26,928.11	4,218.53	7,989.00	64,000.00
Household Home Value in School Community	5,972	64,498.31	18,859.40	9,999.00	266,900.00



Table 2: T-Tests: Stayers Compared to Exiters on Push Factors
(2010-11 through 2017-18)

Variable	K-8 Stayers	K-8 Exiters	HS Stayers	HS Exiters
STUDENT LEVEL				
Black	0.8381	0.8214***	0.8663	0.8767***
Latinx	0.1168	0.0497***	0.0919	0.0352***
White	0.0310	0.0907***	0.0278	0.0635***
Asian	0.0082	0.0240***	0.0100	0.0142***
Economically Disadvantaged	0.9022	0.9011	0.8181	0.8234**
ELL	0.1195	0.0913***	0.0822	0.0440***
Special Education	0.1430	0.1055***	0.1660	0.0750***
ELA Z-Score	-0.6696	-0.5595***	-0.6871	-0.6890
Math Z-Score	-0.7348	-0.6245***	-0.7925	-0.8026
Female	0.4905	0.5013***	0.5101	0.5021***
K-2	0.3534	0.3096***	-	-
3-5	0.3335	0.3297*	-	-
6-8	0.3131	0.3607***	-	-
9-12	-	-	-	-
Residential Block Grp Household Income	29,068.35	30,771.71***	29,895.14	30,928.09***
Residential Block Grp Household Home Value	55,435.84	54,091.06***	57,663.17	56,231.73***
Residential Block Grp Vacancies	0.2732	0.2470***	0.2699	0.2519***
Distance to a Non-Detroit District	3.0670	2.6073***	3.0699	2.7197***
NEIGHBORHOOD CHOICE SET BY GRADE BAND				
N Students	279.6603	229.9468***	284.3143	248.1530***
N Schools Attended	8.6743	6.4337***	9.1841	7.3126***
Ratio of Students to Schools Attended	33.2684	34.0657***	31.1620	32.0774***
N DPSCD Schools Attended	17.5111	17.6530***	18.4800	19.1124***
Number of Charter Schools Attended	15.7573	16.4127***	12.6821	12.9650***
% Students Who Exit	0.2001	0.2873***	0.1993	0.2700***
Distance Students Travel in Miles	2.5486	2.5783***	4.1692	4.1265***
Charter	0.4767	0.4887***	0.4045	0.3982***
Discipline Rate	19.0835	20.0426***	25.7277	26.0447***
School Stability Rate	0.8113	0.8072***	0.7530	0.7536**
% New Teachers	0.1545	0.1568***	0.1683	0.1688**
Teacher Return Rate	0.6304	0.6249***	0.5780	0.5785
% Black Teachers	0.4754	0.4877***	0.4676	0.4759***
Math Z-Score	-0.8013	-0.8067***	-1.0063	-1.0074
ELA Z-Score	-0.7251	-0.7255	-0.8706	-0.8723**
% Black or Latinx in School	0.9581	0.9599***	0.9587	0.9612***
% Black in their School	0.8736	0.9068***	0.9031	0.9171***
% Latinx in their School	0.0844	0.0531***	0.0556	0.0441***
% Economically Disadvantaged	0.8844	0.8838***	0.8337	0.8338***
% Special Education	0.1532	0.1536***	0.1952	0.1968***
% ELL	0.0878	0.0620***	0.0478	0.0405***

* p < 0.05, ** p < 0.01, *** p < 0.001



Table 3: Mixed-Effects Logistic Regressions Modeling Exit for K-8 Detroit Students

	Model 1	Model 2	Model 3	Model 4
STUDENT LEVEL				
Female	-	1.0257**	1.0116	1.0255**
Special Education	-	0.6681***	0.8193***	0.6664***
English Language Learner	-	0.6003***	0.5584***	0.6203***
Upper Elementary (3-5)	-	1.1211**	0.5703	1.1231***
Junior High (6-8)	-	1.0175	0.5050	1.0280
Latinx	-	2.4359***	2.3152***	2.4644***
White or MENA	-	5.8160***	5.6909***	6.6959***
Asian	-	4.3191***	3.9141***	3.2657***
Other Race	-	2.8880***	2.4657***	2.8362***
Economically Disadvantaged	-	1.0292*	1.1295***	1.0298*
Math MEAP/M-STEP z-score+	-	-	1.1186***	-
Distance from home to Detroit border+	-	0.7854***	0.7967***	0.7864***
NEIGHBORHOOD SCHOOL CHOICE SET				
% Economically Disadvantaged students+	-	0.9802	0.9658	0.9836
% Black or Latinx students+	-	1.0124	0.9964	0.9845*
% Black or Latinx students * Latinx	-	-	-	1.1475***
% Black or Latinx students * White or MENA	-	-	-	1.2392***
% Black or Latinx students * Asian	-	-	-	0.9812
% Black or Latinx students * other race	-	-	-	1.0383
Student stability rate+	-	0.9371**	0.9554	0.9403***
Teacher return rate+	-	0.8886***	0.8654***	0.8891***
Discipline rate+	-	1.2843***	1.3011***	1.2755***
Average Math MEAP/M-STEP z-score+	-	0.9045***	0.8601***	0.9062***
% of students who attend a charter school+	-	0.8844***	0.8486***	0.8845***
Ratio of Students to Schools Attended		0.6969***	0.6921***	0.7250***
Intercept	0.1790***	0.1604***	0.3612*	0.1642***
Random Effects Variance Component Coefficient				
n	600,273	523,872	285,660	523,872
Log Likelihood	-266744.19	-227491.88	-132411.17	-227391.26
Inter-Class Correlation	0.1796	0.1387	0.1372	0.1388

*p<0.05, **p<0.01, ***p<0.001

+standardized

**Table 4:** Mixed-Effects Logistic Regressions Modeling Exit for HS Detroit Students

	Model 1	Model 2	Model 3	Model 4
STUDENT LEVEL				
Female	-	0.8992***	0.8974***	0.8992***
Special Education	-	0.3882***	0.6026***	0.3863***
English Language Learner	-	0.5628***	0.4626***	0.5859***
10th grade	-	1.1534***	-	1.153***
11th grade	-	1.1464***	-	1.1465***
12th grade	-	1.4308***	-	1.4318***
Latinx	-	1.5987***	1.7258***	1.5572***
White	-	4.1690***	4.8542***	5.9078***
Asian	-	2.2341***	2.9943***	1.7920***
Other Race	-	3.1287***	3.1586***	3.0398***
Economically Disadvantaged	-	1.1920***	1.2835***	1.1949***
Math MEAP/M-STEP z-score+	-	-	0.9268***	-
Distance from home to Detroit border+	-	0.8338***	0.7920***	0.8332***
NEIGHBORHOOD SCHOOL CHOICE SET				
% Economically Disadvantaged students+	-	1.1049***	1.1477***	1.0987***
% Black or Latinx students+	-	1.0357	0.9493	0.9644
% Black or Latinx students * Latinx	-	-	-	1.2426***
% Black or Latinx students * White or MENA	-	-	-	1.7642***
% Black or Latinx students * Asian	-	-	-	0.9696
% Black or Latinx students* other race	-	-	-	1.1352
Teacher return rate+	-	0.9414**	0.9630	0.9413**
Discipline rate+	-	1.2158***	1.2324***	1.2129***
Average Math MEAP/M-STEP z-score+	-	0.9498	1.0259	0.9511
% of students who attend a charter school+	-	0.8271***	-0.9630	0.8377***
Ratio of Students to Schools Attended	-	0.7381***	0.7138***	0.7848***
Intercept	0.2978***	0.1753***	0.1862***	0.1835***
Random Effects Variance Component Coefficient				
n	254,192	217,642	35,190	217,642
Log Likelihood	-138484.13	-114813.29	-18563.02	-114717.98
Inter-Class Correlation	0.1476	0.1194	0.1068	0.1194

*p<0.05, **p<0.01, ***p<0.001

+standardized



Table 5: Exiters: T-Tests Comparing Detroit Choice Sets to Exit Schools Attended (2010-11 to 2017-18)

Variable	Detroit Neighbor Choice Set (K-8)	Suburban School Exited To (K-8)	Detroit Neighbor Choice Set (9-12)	Suburban School Exited To (9-12)
SCHOOL CHARACTERISTICS				
Charter	0.4887	0.8063***	0.3982	0.3437***
Discipline Rate	20.0426	21.8202***	26.0446	26.6715***
School Stability Rate	0.8072	0.8211***	0.7536	0.7445*
% New Teachers	0.1568	0.2462***	0.1688	0.1856***
Teacher Return Rate	0.6249	0.5762***	0.5785	0.5986***
% Black Teachers	0.4877	0.2210***	0.4759	0.2023***
Math Z-Score	-0.8067	-0.5980***	-1.0074	-0.8503***
ELA Z-Score	-0.7255	-0.5564***	-0.8723	-0.7278***
% Black or Latinx	0.9599	0.7951***	0.9612	0.7969***
% Black	0.9068	0.7567***	0.9171	0.7669***
% Latinx	0.0531	0.0573***	0.0441	0.0300***
% Economically Disadvantaged	0.8838	0.8686***	0.8338	0.7860***
% ELL	0.0620	0.0979***	0.0405	0.0544***
% Special Education	0.1535	0.1098***	0.1968	0.0925***
NEIGHBORHOOD/COMMUNITY CHARACTERISTICS				
% White in School Community	0.0910	0.5130***	0.1156	0.5299***
% Black in School Community	0.8213	0.4008***	0.7919	0.3751***
% Latinx in School Community	0.0272	0.0272***	0.0596	0.0233***
Household Income in School Community	28,202.97	45,061.32***	26,068.79	45,088.60***
Household Home Value in School Community	59,994.34	91,051.82***	66,703.59	88,664.05***

* p < 0.05, ** p < 0.01, *** p < 0.001



Table 6: Exiters: T-Tests Comparing Detroit Choice Set Schools to Exit School Attended, by Economic Disadvantage (2010-11 to 2017-18)

	Economically Disadvantaged Students		Not Economically Disadvantaged Students		Economically Disadvantaged Students		Not Economically Disadvantaged Students	
Variable	Detroit Neighbor Choice Set (k-8)	Suburban School Exited To (K-8)	Detroit Neighbor Choice Set (K-8)	Suburban School Exited To (K-8)	Detroit Neighbor Choice Set (9-12)	Suburban School Exited To (9-12)	Detroit Neighbor Choice Set (9-12)	Suburban School Exited To (9-12)
N	100,624		11,048		55,714		11,950	
SCHOOL CHARACTERISTICS								
Charter	0.4874	0.8159***	0.5001	0.7196***	0.3989	0.3598***	0.3950	0.2689***
Discipline Rate	20.0478	21.9838***	19.9958	20.3437***	26.1553	27.1007***	25.5287	24.5798***
School Stability Rate	0.8072	0.8210***	0.8070	0.8224***	0.7538	0.7457***	0.7524	0.7382***
% New Teachers	0.1566	0.2502***	0.1588	0.2094***	0.1694	0.1899***	0.1656	0.1654
Teacher Return Rate	0.6248	0.5743***	0.6262	0.5938***	0.5786	0.5957***	0.5781	0.6137***
% Black Teachers	0.4876	0.2229***	0.4892	0.2034***	0.4765	0.2050***	0.4733	0.1899***
Math Z-Score	-0.8086	-0.6052***	-0.7893	-0.5321***	-1.0064	-0.8547***	-1.0116	-0.8297***
ELA Z-Score	-0.7282	-0.5674***	-0.7011	-0.4553***	-0.8740	-0.7382***	-0.8645	-0.6792***
% Black or Latinx	0.9592	0.7955***	0.9669	0.7919***	0.9606	0.8002***	0.9642	0.7817***
% Black	0.9058	0.7569***	0.9156	0.7556***	0.9161	0.7698***	0.9222	0.7537***
% Latinx	0.0533	0.0386***	0.0513	0.0363***	0.0445	0.0304***	0.0420	0.0280***
% Economically Disadvantaged	0.8846	0.8804***	0.8764	0.7608***	0.8343	0.8001***	0.8314	0.7204***
% ELL	0.0628	0.1030***	0.0545	0.0514***	0.0410	0.0592***	0.0379	0.0322***
% Special Education	0.1540	0.1092***	0.1502	0.1149***	0.1974	0.0933***	0.1943	0.0887***
NEIGHBORHOOD/ COMMUNITY CHARACTERISTICS								
% White in School Community	0.0912	0.5156***	0.0895	0.4891***	0.1164	0.5258***	0.1116	0.5489***
% Black in School Community	0.8207	0.3974***	0.8268	0.4320***	0.7906	0.3774***	0.7979	0.3646***
% Latinx in School Community	0.0564	0.0270***	0.0534	0.0288***	0.0598	0.0235***	0.0584	0.0225***
Household Income in School Community	28,132.33	44,477.18***	28,846.60	50,342.77***	26,059.32	44,754.27***	26,112.96	46,651.05***
Household Home Value in School Community	59,802.51	90.156.42***	61,742.28	99,075.55***	66,307.39	86,851.04***		97,701.89***

* p < 0.05, ** p < 0.01, *** p < 0.001

